

WHAT IS CLAIMED IS:

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- 1 A wireless communication system comprising:
  - 2 a plurality of access points, each access point having at least one
  - 3 omnidirectional antenna forming a substantially uniform coverage area around the
  - 4 access point; and
  - 5 a plurality of subscriber units, each subscriber unit having at least one
  - 6 directional antenna forming a directional coverage area, each subscriber unit
  - 7 communicating with a particular access point through transmissions between the
  - 8 subscriber unit directional antenna and the omnidirectional antenna for the particular
  - 9 access point.
- 1 2. A wireless communication system as in claim 1 further
- 2 comprising a routing network interconnecting the plurality of access points.
- 1 3. A wireless communication system as in claim 2 wherein the
- 2 routing network comprises a distributed network of distribution points.
- 1 4. A wireless communication system as in claim 3 wherein at
- 2 least one distribution point is in the same location as one access point.
- 1 5. A wireless communication system as in claim 2 wherein at
- 2 least one access point is in wireless communication with the routing network through
- 3 at least one backhaul antenna.
- 1 6. A wireless communication system as in claim 1 wherein
- 2 transmissions between the subscriber unit and the access point comprise packetized
- 3 information.
- 1 7. A wireless communication system as in claim 1 wherein the
- 2 subscriber unit is a terminal network controller comprising at least one interface,
- 3 each interface providing access to the wireless communication system.

1 8. A wireless communication system as in claim 7 wherein the  
2 terminal network controller further comprises a routing switch routing information  
3 packets to and from the at least one interface.

1 9. A wireless communication system as in claim 1 wherein the  
2 directional antenna comprises a plurality of antenna patches, the subscriber unit  
3 selecting at least one antenna patch as the directional antenna.

1 10. A wireless communication system as in claim 1 wherein the  
2 directional antenna is operative to be positioned to optimize transmissions between  
3 the subscriber unit and the particular access point.

1 11. A wireless communication system as in claim 1 further  
2 comprising:  
3 a plurality of access points, each access point having at least one  
4 directional antenna forming a coverage sector around a portion of the access point;  
5 and  
6 a plurality of subscriber units, each subscriber unit having at least one  
7 omnidirectional antenna forming a substantially uniform coverage area around the  
8 subscriber unit, each subscriber unit communicating with a particular access point  
9 through transmissions between the subscriber unit omnidirectional antenna and the  
10 directional antenna for the particular access point.

1 12. A wireless communication system as in claim 11 wherein at  
2 least one access point has both at least one omnidirectional antenna and at least one  
3 directional antenna.

1 13. A wireless communication system as in claim 11 wherein  
2 access points transmit from omnidirectional antennas at a first frequency and from  
3 directional antennas at a second frequency different than the first frequency.

1 14. A method of wireless communication comprising:

2 transmitting downlink information in a substantially uniform coverage  
3 area around each of a plurality of access points  
4 receiving the downlink information at a subscriber unit;  
5 transmitting uplink information in a focused coverage area from the  
6 subscriber unit; and  
7 receiving the uplink information at one of the access points.

1 15. A method of wireless communication as in claim 14 wherein  
2 transmitting in the substantially uniform coverage area around each of the access  
3 points comprises transmitting from an omnidirectional antenna and receiving the  
4 uplink information comprises receiving at the omnidirectional antenna.

1 16. A method of wireless communication as in claim 14 wherein  
2 transmitting in a focused coverage area comprises transmitting from a directional  
3 antenna and receiving the downlink information comprises receiving at the  
4 directional antenna.

1 17. A method of wireless communication as in claim 16 further  
2 comprising selecting at least one of a plurality of antenna patches to form the  
3 directional antenna.

1 18. A method of wireless communication as in claim 16 further  
2 comprising aiming the directional antenna to improve receiving the downlink  
3 information.

1 19. A method of wireless communication as in claim 14 wherein  
2 downlink information and uplink information comprises packetized information.

1 20. A method of wireless communication as in claim 14 further  
2 comprising routing information between the plurality of access points.

1 21. A method of wireless communication as in claim 20 wherein  
2 routing information comprises:

3 receiving the information in a distribution point;  
4 sending the information to an access point in communication with the  
5 distribution point if the information is destined for a subscriber unit in  
6 communication with the access point;  
7 otherwise, forwarding the information to another distribution point in  
8 communication with the distribution point.

1 22. A method of wireless communication as in claim 20 wherein  
2 routing information comprises transmitting the information between each access point  
3 and one of a plurality of distribution points.

1 23. A method of wireless communication as in claim 22 wherein  
2 transmitting the information comprises wireless transmission.

1 24. A method of wireless communication as in claim 22 wherein  
2 at least one access point is in the same location as at least one distribution point.

1 25. A method of wireless communication as in claim 14 further  
2 comprising routing the downlink information to one of a plurality of interfaces at the  
3 subscriber unit.

1 26. A method of wireless communication as in claim 14 further  
2 comprising:  
3 transmitting downlink information in a focused coverage area around  
4 each of a plurality of access points  
5 receiving the downlink information at a subscriber unit;  
6 transmitting uplink information from a substantially uniform coverage  
7 area around the subscriber unit; and  
8 receiving the uplink information at one of the access points.

1 27. A method of wireless communication as in claim 26 wherein  
2 at least one access point both transmits downlink information in a focused coverage  
3 area and transmits downlink information in a substantially uniform coverage area.

1                   28.     A method of wireless communication as in claim 26 wherein  
2     downlink information transmitted in the substantially uniform coverage area is  
3     transmitted at a first frequency and downlink information transmitted in the focused  
4     coverage area is transmitted at a second frequency different than the first frequency.

1                   ~~29.~~    A wireless communication system comprising:  
2                   a plurality of access points, each access point transmitting and  
3     receiving information packets, each information packet transmitted over a  
4     substantially uniform coverage area around the access point;  
5                   a network of distribution points in communication with the access  
6     points, the distribution points routing information packets between the access points;  
7     and  
8                   a plurality of subscriber units, each subscriber unit transmitting and  
9     receiving information packets, each subscriber unit transmitting information packets  
10    over a focused directional coverage area.

1                   30.     A wireless communication system for communicating with a  
2     plurality of subscriber units, the system comprising:  
3                   a plurality of access points, each access point having an  
4     omnidirectional antenna; and  
5                   a plurality of subscriber units, each subscriber unit having a  
6     directional antenna;  
7                   wherein each access point forms a communication link with at least  
8     one subscriber unit by transmitting information packets between the access point  
9     omnidirectional antenna and the subscriber unit directional antenna.

1                   ~~31.~~    A method of communicating comprising:  
2                   establishing a plurality of access points, each access point having an  
3     omnidirectional antenna;  
4                   transmitting information packets in a uniform coverage area around  
5     each access point; and

6 receiving information packets at each access point, the received  
7 information points transmitted from a directional antenna in each of a plurality of  
8 subscriber units.